

MEMORANDUM

SUBJECT: Regulatory Determination on the Status of CatoxidTM Units

FROM: Elizabeth A. Cotsworth, Director
Office of Solid Waste

TO: EPA Regional Senior Policy Advisers

This letter addresses an issue raised during a meeting with the U.S. Environmental Protection Agency on June 11, 2001 by representatives of OxyVinyls LP, Formosa Plastic Corporation, and The Dow Chemical Company for clarification on the regulatory status of the CatoxidTM unit within the CatoxidTM process and its secondary feed materials. These companies requested a determination on whether the CatoxidTM unit is regulated as a Halogen Acid Furnace (HAF). The CatoxidTM unit is a fluidized bed reactor developed by B.F. Goodrich Company, a predecessor of OxyVinyls. Because the CatoxidTM process may be used at different sites around the country, I am sharing this determination with all of you.

Based on a recent site visit by one of my staff, we believe the CatoxidTM process is a manufacturing process which uses a fluidized bed reactor to make a hydrogen chloride intermediate product which is, in turn, used to manufacture ethylene dichloride (EDC). Specifically, the CatoxidTM unit reacts secondary materials containing chlorinated hydrocarbons and oxygen on a fluidized bed of catalysts to produce hydrogen chloride gas, water, and carbon dioxide. It appears that the CatoxidTM unit operates as a recycling unit designed specifically to react secondary material feeds to produce a chemical intermediate (hydrogen chloride gas) used directly in the manufacture of EDC. This hydrogen chloride product is used as feed to the oxychlorinator to reduce its need for purchased hydrogen chloride gas to make EDC. We observed that the process is totally enclosed and does not produce emissions during feed reactions.

From a production standpoint, the CatoxidTM process train manufactures EDC from secondary materials in the very same way that EDC production occurs when using essentially pure anhydrous hydrogen chloride streams as feed to the oxychlorinator. The only difference is that the CatoxidTM process provides the EDC manufacturing process with an additional chlorine- containing feedstream, reducing the amount of a purchased hydrogen chloride feed required to

make EDC. The fluidized bed design used in the Catoxid™ process is the one that is commonly used in the chemical industry in situations where efficient mass and heat transfer are desired. The fluidized bed reactor in this process is an integral part of the EDC production configuration and has been shown to be maintained similarly to any other typical industrial process unit throughout its active life. For example, catalyst performance is monitored to ensure optimum reaction kinetics. The catalyst bed is replaced periodically to ensure that operating conditions maximize the production of the chemical intermediate. Additionally, a process control system monitors the manufacture of the intermediate product closely to ensure that the reactions occur at a constant temperature and that the reaction efficiency is maximized.

We believe that the Catoxid™ process reactor operated/functioning in this manner is not a HAF as we envisioned it in the February 21, 1991 "BIF" rule (56 FR 7139). In the final rulemaking which covered the Burning of Hazardous Waste in Boilers and Industrial Furnaces, the "BIF" rule (56 FR 7139, February 21, 1991), EPA added HAFs to the list of recognized industrial furnaces in response to a 1986 petition by The Dow Chemical Company requesting that EPA designate their HAFs as industrial furnaces. In that rule, we explained what the

Agency believed a HAF to be and described in detail why EPA believes HAFs to be industrial furnaces. EPA stated that "HAFs are typically modified firetube boilers that process secondary wastestreams containing 20 to 70 percent chlorine or bromine to produce a halogen acid product by scrubbing acid from the combustion gases." (56 FR 7139, February 21, 1991). Thus, the Agency viewed HAFs as utilizing combustion and as being designed as boilers or operated in a manner similar to a boiler. We do not believe this covers the Catoxid™ unit because the Catoxid™ unit is designed to manufacture a chemical intermediate using a catalytic reactor. It does not scrub acid from combustion gases prior to venting to the atmosphere as is the case with a HAF.

The definition of a HAF in 40 CFR section 260.10 is not self-defining. The definition states, for example, that HAFs engage in "production of acid" without further explanation, leaving open such questions to whether acid is to be produced for an end market, or for use as an intermediate, whether it is produced through recovery of existing acid values (such as by scrubbing air emissions) or by reacting other chemicals, and other such issues. Interpreting the phrase "production of acid" in light of our stated intent (quoted above), we do not believe that the acid generation, in a closed chemical manufacturing process, through controlled production conditions typical of routine manufacturing steps described earlier is "production of acid" for purposes of the HAF definition.

Therefore, we do not believe that Catoxid™ units operated as described above are HAF's under EPA's definition of that term. This may mean that secondary materials going to such units under these conditions are not solid waste (under federal regulations) pursuant to the so-called use/reuse exclusion in 40 CFR section 261.2(e). Of course, case-specific determinations by the appropriate RCRA authorized State are necessary to determine if the secondary materials at a

given facility is eligible for this exclusion. (Such a determination also would necessarily have to consider whether or not sham recycling is occurring.) Please note that States authorized to implement the RCRA program may have their own policies and regulations which may be more stringent than federal regulations and policies.

If you have any further questions, please contact David J. Carver of the Office of Solid Waste at (703) 308-8603.

cc: Wade Wheatley, Texas TNRCC
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